This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (canceled)
2. (canceled)
3. (canceled)
4. (canceled)
5. (canceled)
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21. (canceled)
22. (canceled)
23. (canceled)
24. (canceled)
25. (canceled)
26. (canceled)
27. (canceled)

28. (canceled)

29. (canceled)

30. (canceled)

31. (currently amended) A metal powder composition wherein said powder particle size is less than 500 nanometers and smaller than powder precursor having enhanced thermal conductivity and reduced energy consumption ~~electrical conductivity, produced~~ wherein said powder is reduced from a coated powder precursor ~~in combination a~~ in at least one fluid selected from the group consisting of solvents, monomers, interpolymers, polymers, phase change material, heat transfer fluid, swellable polymers, swellable polysaccharides, electrolyte, spent etchant, ionic surfactants, ionic liquids, supercritical liquids or combinations thereof wherein said coated powder precursor has an average particle less than 2 microns. ÷

~~a. coated powder precursor having average particle less than 2 microns sizes in the nanometer to micron size range produced by a process step selected from the group of solubilized, dispersed, emulsified, grinded, spray atomized and vaporized; and~~

~~b. coating imparted to the powder precursor particles; and~~

c. ~~reaction medium fluid selected from the group consisting of solvents, fluids, monomers, interpolymers, polymers, and phase change materials.~~

32. (currently amended) The ~~coating imparted to the~~ powder ~~precursor particles~~ according to claim 31, wherein the ~~coating imparted to the~~ coated powder precursor ~~particles further~~ comprises a coating ~~capable of acting~~ in stochiometric excess and has at least one function selected from the group consisting of ~~as at least one of imparting~~ composition stabilization, corrosion resistance ~~and acting as a~~ dispersant, or combinations thereof.

33. (currently amended) The ~~coating imparted to the~~ powder ~~precursor particles~~ according to claim 32, wherein the ~~coating imparted to the~~ coated powder precursor ~~particles~~ is prepared by one of:

a. complexing a coating compound with powder precursor particles;

b. adsorbing a coating compound on surfaces of the powder precursor particles; or

c. organometallic chemistry.

34. (canceled)

35. (currently amended) The powder according to claim 31, wherein the ~~in-situ complexing of coating compound on~~ coated powder precursor is reduced by one method selected from the group consisting of: ~~particles according to claim 34 is prepared by one of:~~

a. microemulsions and chemical reduction of pre-complexed metal salts;

b. microemulsions and reduction of pre-complexed metal salts using sonochemistry;

c. sonochemistry using high or ultrahigh frequency acoustic wave generation of cavitation in reaction vessel for reduction of pre-complexed metal salts;

d. sonochemistry using high or ultrahigh frequency acoustic wave generation of cavitation onto plating surface through plating by electroless deposition of pre-complexed metal salts;

e. sonochemistry using high or ultrahigh frequency acoustic wave generation of cavitation onto plating surface through plating deposition by electrolysis of pre-complexed metal salts;

f. sonochemistry using high or ultrahigh frequency acoustic wave generation of cavitation onto plating surface through plating deposition by electrolysis of pre-complexed metal salts using high frequency electrical power source;

g. submicron atomization of pre-complexed metal salts in liquid carrier with in situ chemical reduction;

h. submicron atomization of pre-complexed metal salts in liquid carrier with in situ electrochemical reduction;

i. submicron atomization of pre-complexed metal salts in liquid carrier within vessel with voltage potential between atomizer and cathode;

j. plasma processing of powder precursor with quenching in liquid carrier having pre-solubilized complexing coating compound;

k. combustion synthesis processing of powder precursor with quenching in liquid carrier having pre-solubilized complexing coating compound;

l. pre-complexed powder precursor dissolved in supercritical fluid with in situ chemical reduction;

m. pre-complexed powder precursor dissolved in supercritical fluid with in situ electrochemical reduction;

n. electrolysis of pre-complexed metal salts using high frequency electrical power source on anode and cathode;

o. electrolysis of pre-complexed metal salts using electrically conductive material selected from group of electrolyte or conductive polymer;

p. high pressure hydrogen chemical reduction reaction of powder precursor in liquid carrier having pre-solubilized complexing coating compound;

q. high pressure hydrogen chemical reduction reaction of powder precursor in liquid carrier having pre-solubilized complexing coating compound in combination with high or ultrahigh frequency acoustic wave generation of cavitation in reaction vessel;

r. high pressure hydrogen chemical reduction reaction of powder precursor in liquid carrier having pre-solubilized complexing coating compound in combination with high or ultrahigh frequency electromagnetic force generation in reaction vessel;

s. cryogenic embrittlement in combination with processes selected from the group of high pressure hydrogen embrittlement, or high | ultrahigh frequency acoustic wave generation of cavitation in reaction vessel; or

t. electrodialysis of pre-complexed metal salts in combination with processes selected from the group of high pressure hydrogen embrittlement, or high | ultrahigh frequency acoustic wave generation of cavitation on cathode.

36. (previously presented) The powder according to claim 31, wherein the powder is selected from the group of metals consisting of copper, titanium, nickel, beryllium, iron, silver, gold, alloys thereof, blends thereof, and compounds thereof.

37. (currently amended) The ~~reaction medium~~ powder according to claim 31, whereby the ~~reaction medium~~ fluid is further comprised of powders selected from the group of carbons consisting of graphite, carbon nanotubes, diamond, fullerene carbons of the general formula C.sub.2.sub.n ~~$(C_2)_n$~~, where n is an integer of at least 30, and blends thereof.

38. (canceled)

39. (canceled)

40. (currently amended) The ~~reaction medium~~ powder according to claim 31, wherein the ~~reaction medium~~ fluid is selected from the group consisting of conjugated polymers, crystalline polymers, amorphous polymers, epoxies, resins, acrylics, polycarbonates, polyphenylene ethers, polyimides, polyesters, acrylonitrile-butadiene-styrene (ABS); polyethylene, polypropylene, polyamides, polyesters, polycarbonates, polyphenylene oxide, polyphenylene sulphide, polyetherimide, polyetheretherketone, polyether ketone, polyimides, polyarylates, styrene, poly(tetramethylene oxide), poly(ethylene oxide), poly(butadiene), poly(isoprene), poly(hydrogenated butadiene), poly(hydrogenated isoprene), liquid crystal polymers, polycarbonate, polyamide-imide, copolyimides precursors, reinforced polyimide composites and laminates made from said polyimides, polyphenylated polynuclear aromatic diamines, fluorocarbon polymers, polyetherester elastomers, neoprene, polyurea, polyanhydride ,chlorosulphonated polyethylene, ethylene/propylene/diene (EPDM) elastomers, polyvinyl chloride, polyethylene terephthalate, polyvinylchloride, ABS, polystyrene, polymethylmethacrylate, polyurethane, polyacrylate, polymethacrylate, and polysiloxane, aromatic copolyimide, polyalpholefins, polythiophene, polyaniline, polypyrrole, polyacetylene, polyisocyanurates, and derivatives thereof, vinyl monomers, styrene, vinyl pyridines, N-vinyl pyrrolidone, vinyl acetate, acrylonitrile, methyl vinyl ketone, methyl methacrylate, methyl acrylate, 2-hydroxyethyl methacrylate, 2-hydroxyethyl acrylate; polyols, ethylene glycol, 1,6-hexane diol, 1,4-cyclohexanedicarbinol, polyamines, 1,6-hexadiamine, 4,4'-methylenebis (N-methylaniline), polycarboxylic acids, adipic acid, phthalic acid, epoxides, ethylene oxide, propylene oxide, and cyclohexene oxide, polyalkylene glycols, polyethylene glycol, polypropylene glycol, vinyl polymers, polystyrene, polyvinyl acetate, polyvinylpyrrolidone, polyvinylpyridine, polymethyl methacrylate, organic liquid-soluble polysaccharides, functionalized polysaccharides, cellulose acetate, and crosslinked swellable polysaccharides.

41. (currently amended) The ~~reaction medium~~ powder according to claim 31, wherein ~~the reaction medium further comprises a~~ at least one phase change medium is selected from the group consisting of salt-hydrates, organic eutectics, clathrate-hydrates, paraffins, hydrocarbons, Fischer-Tropsch hard waxes, inorganic eutectic mixtures, acetamide, methyl

fumarate, myristic acid, Glauber's salt, paraffin wax, fatty acids. methyl-esters, methyl palmitate, methyl stearate, mixtures of short-chain acids, capric and lauric acid, coconut fatty acids, propane and methane.

42. (currently amended) The ~~coating imparted to the~~ powder according to claim 31 ~~precursor particles~~, wherein the ~~coating imparted to the~~ coated powder precursor ~~particles is~~ has at least one coating selected from the group consisting of azoles, benzotriazole, tolytriazole, halogen resistant azoles, ~~and~~ pentane-soluble amide, pyridine-based compound, pentane-soluble dispersant, an inorganic corrosion inhibitor compound, substituted derivatives thereof, or combinations thereof.

43. (currently amended) The ~~azole~~ powder according to claim 42, wherein the azole is selected from the group consisting ~~comprising~~ of aromatic azoles, diazoles, triazoles, tetrazoles, benzotriazole, tolyltriazole, 2,5-(aminopentyl) benzimidazole, alkoxybenzotriazole, imidazoles, ~~such as~~ including oleyl imidazoline, thiazoles including ~~, such as~~ mercaptobenzothiazole, 1-phenyl-5-mercaptotetrazole, thiodiazoles, halogen-resistant azoles, 5,6-dimethyl-benzotriazole; 5,6-diphenylbenzotriazole; 5-benzoyl-benzotriazole; 5-benzyl-benzotriazole and 5-phenyl-benzotriazole, a combination of alkoxybenzotriazole, mercaptobenzothiazole, tolyltriazole, benzotriazole, a substituted benzotriazole, and/or 1-phenyl-5-mercaptotetrazole, a mixture of a pentane-soluble imidazoline, ~~a pentane-soluble amide, a pyridine-based compound, a pentane-soluble dispersant, and a solvent, and~~ or combinations thereof.

44. (canceled)

45. (currently amended) The ~~coating imparted to the~~ powder according to claim 31 ~~precursor particles~~, wherein the ~~coating imparted to the~~ coated powder precursor ~~particles~~ comprises a ~~cerium compound for powders~~ at least one powder selected from the group consisting of aluminum and aluminum alloys having a coating comprising a cerium compound.

46. (currently amended) The ~~coating imparted to the~~ powder according to claim 31 ~~precursor particles~~, wherein the ~~coating imparted to the~~ coated powder precursor ~~particles is~~ comprises at least one powder selected from the group consisting of copper, silver, iron, steel and alloys thereof having at least one coating selected from the group consisting of mercapto-substituted

thiodiazoles, amino-substituted thiodiazoles, and mercapto-substituted triazole, amino-substituted triazoles, oleyl imidazoline, triethanolamine, monoethanolamine, or combinations thereof. ~~and monoethanolaminefor powders selected from the group of copper, silver, iron, steel and alloys thereof.~~

47. (currently amended) The ~~coating imparted to the~~ powder ~~precursor particles~~ according to claim 31, wherein the ~~coating imparted to the~~ coated powder precursor ~~particles~~ is in sufficient thickness ~~amount~~ to form at least a molecular monolayer ~~of the~~ coating ~~compound on surfaces of the powder particles.~~

48. (new) The metal powder according to claim 31, wherein the reduced metal powder is further processed by removal of reduction reaction medium, and subsequent further comprised of monomers, interpolymers, polymers, phase change material, heat transfer fluid, swellable polymers, swellable polysaccharides, electrolyte, spent etchant, ionic surfactants, ionic liquids, supercritical liquids or combinations thereof.

49. (new) A metal powder having enhanced thermal conductivity, reduced energy consumption, particle size less than 500 nanometers and a coating in stochiometric excess having at least one function selected from the group consisting of composition stabilization, corrosion resistance dispersant, or combinations thereof, wherein said powder is further comprised of at least one fluid selected from the group consisting of phase change material, heat transfer fluid, swellable polymers, swellable polysaccharides, electrolyte, ionic surfactants, ionic liquids, supercritical liquids or combinations thereof.

50. (new) A metal powder having enhanced electrical and thermal conductivity, particle size less than 500 nanometers and a coating in stochiometric excess having at least one function selected from the group consisting of composition stabilization, corrosion resistance dispersant, or combinations thereof, wherein said powder is further comprised of at least one fluid selected from the group consisting of phase change material, conductive polymers, electrolyte, ionic surfactants, ionic liquids, supercritical liquids or combinations thereof.

51. (new) The metal powder according to claim 31, wherein the metal powder is manufactured into high energy efficiency products including engine cooling, heating, air conditioning,

refrigeration, thermal storage, heat pipes, fuel cells, battery systems, hot water and steam systems, and microprocessor cooling systems.

52. (new) The metal powder according to claim 49, wherein the metal powder is manufactured into high energy efficiency products including engine cooling, heating, air conditioning, refrigeration, thermal storage, heat pipes, fuel cells, battery systems, hot water and steam systems, and microprocessor cooling systems.

53. (new) The metal powder according to claim 50, wherein the metal powder is manufactured into high energy efficiency products including engine cooling, heating, air conditioning, refrigeration, thermal storage, heat pipes, fuel cells, battery systems, hot water and steam systems, and microprocessor cooling systems.